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1 [XML indexing and compression: XPRESS: a queriable compression for XML data](#)

Jun-Ki Min, Myung-Jae Park, Chin-Wan Chung

 June 2003 **Proceedings of the 2003 ACM SIGMOD international conference on Management of data**
Full text available: [pdf\(277.17 KB\)](#)
 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Like HTML, many XML documents are resident on native file systems. Since XML data is irregular and verbose, the disk space and the network bandwidth are wasted. To overcome the verbosity problem, the research on compressors for XML data has been conducted. However, some XML compressors do not support querying compressed data, while other XML compressors which support querying compressed data blindly encode tags and data values using predefined encoding methods. Thus, the query performance on com ...

2 [Constraints for semistructured data and XML](#)

Peter Buneman, Wenfei Fan, Jérôme Siméon, Scott Weinstein

March 2001 **ACM SIGMOD Record**, Volume 30 Issue 1Full text available: [pdf\(840.71 KB\)](#)
 Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Integrity constraints play a fundamental role in database design. We review initial work on the expression of integrity constraints for semistructured data and XML.

3 [Haskell and XML: generic combinators or type-based translation?](#)

Malcolm Wallace, Colin Runciman

 September 1999 **ACM SIGPLAN Notices , Proceedings of the fourth ACM SIGPLAN international conference on Functional programming**, Volume 34 Issue 9
Full text available: [pdf\(1.48 MB\)](#)
 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present two complementary approaches to writing XML document-processing applications in a functional language. In the first approach, the generic tree structure of XML documents is used as the basis for the design of a library of combinators for generic processing: selection, generation, and transformation of XML trees. The second approach is to use a type-translation framework for treating XML document type definitions (DTDs) as declarations of algebraic data types, and a derivation of the cor ...

4 [Exchanging intensional XML data](#)

Tova Milo, Serge Abiteboul, Bernd Amann, Omar Benjelloun, Fred Dang Ngoc

March 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 1

Full text available:  [pdf\(1.07 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

XML is becoming the universal format for data exchange between applications. Recently, the emergence of Web services as standard means of publishing and accessing data on the Web introduced a new class of XML documents, which we call *intensional* documents. These are XML documents where some of the data is given explicitly while other parts are defined only intensionally by means of embedded calls to Web services. When such documents are exchanged between applications, one has the choice of ...

Keywords: Data exchange, Web services, XML, intensional information, typing

5 [Exploring XML for data exchange in the context of an undergraduate database curriculum](#) 

Suzanne W. Dietrich, Susan D. Urban, Hua Ma, Yang Xiao, Shama Patel

February 2005 **ACM SIGCSE Bulletin , Proceedings of the 36th SIGCSE technical symposium on Computer science education**, Volume 37 Issue 1

Full text available:  [pdf\(225.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The relationship between XML and database management systems has become an important topic for coverage at the undergraduate level. This paper presents an approach to teaching the use of XML through the study of data exchange. After a brief review of XML, the paper provides a tutorial on the different features that are provided in major relational database products for the import and export of XML, providing a discussion of how these features can be used as implementation exercises for students. ...

Keywords: XML, data exchange, object-oriented databases, object-relational databases, relational databases, undergraduate database curriculum

6 [Data integration and sharing I: Exchanging intensional XML data](#) 

Tova Milo, Serge Abiteboul, Bernd Amann, Omar Benjelloun, Fred Dang Ngoc

June 2003 **Proceedings of the 2003 ACM SIGMOD international conference on Management of data**


Full text available:  [pdf\(237.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

XML is becoming the universal format for data exchange between applications. Recently, the emergence of Web services as standard means of publishing and accessing data on the Web introduced a new class of XML documents, which we call *intensional* documents. These are XML documents where some of the data is given explicitly while other parts are defined only intensionally by means of embedded calls to Web services. When such documents are exchanged between applications, one has the choice to ...

7 [DTD inference for views of XML data](#) 

Yannis Papakonstantinou, Victor Vianu

May 2000 **Proceedings of the nineteenth ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems**

Full text available:  [pdf\(347.61 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


We study the inference of Data Type Definitions (DTDs) for views of XML data, using an abstraction that focuses on document content structure. The views are defined by a query language that produces a list of documents selected from one or more input sources. The selection conditions involve vertical and horizontal navigation, thus querying explicitly the order present in input documents. We point several strong limitations in the descriptive

ability of current DTDs and the need for extendi ...

8 Type inference for queries on semistructured data

Tova Milo, Dan Suciu

May 1999 **Proceedings of the eighteenth ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems**

Full text available:  [pdf\(1.37 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



9 Research sessions: data integration: Constraint-based XML query rewriting for data integration

Cong Yu, Lucian Popa

June 2004 **Proceedings of the 2004 ACM SIGMOD international conference on Management of data**

Full text available:  [pdf\(240.77 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)



We study the problem of answering queries through a target schema, given a set of mappings between one or more source schemas and this target schema, and given that the data is at the sources. The schemas can be any combination of relational or XML schemas, and can be independently designed. In addition to the source-to-target mappings, we consider as part of the mapping scenario a set of target constraints specifying additional properties on the target schema. This becomes particularly importan ...

10 XML with data values: typechecking revisited

Noga Alon, Tova Milo, Frank Neven, Dan Suciu, Victor Vianu

May 2001 **Proceedings of the twentieth ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems**

Full text available:  [pdf\(264.17 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



We investigate the *type checking* problem for XML queries: statically verifying that every answer to a query conforms to a given output DTD, for inputs satisfying a given input DTD. This problem had been studied by a subset of the authors in a simplified framework that captured the structure of XML documents but ignored data values. We revisit here the type checking problem in the more realistic case when data values are present in documents and tested by queries. In this extended frame ...

11 Efficiently publishing relational data as XML documents

Jayavel Shanmugasundaram, Eugene Shekita, Rimon Barr, Michael Carey, Bruce Lindsay, Hamid Pirahesh, Berthold Reinwald

September 2001 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 10 Issue 2-3

Full text available:  [pdf\(216.67 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)



XML is rapidly emerging as a standard for exchanging business data on the World Wide Web. For the foreseeable future, however, most business data will continue to be stored in relational database systems. Consequently, if XML is to fulfill its potential, some mechanism is needed to publish relational data as XML documents. Towards that goal, one of the major challenges is finding a way to efficiently structure and tag data from one or more tables as a hierarchical XML document. Different alterna ...

Keywords: Publishing, Relational databases, XML

12

Computing graphical queries over XML data



Sara Comai, Ernesto Damiani, Piero Fraternali

October 2001 **ACM Transactions on Information Systems (TOIS)**, Volume 19 Issue 4

Full text available:  pdf(707.80 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The rapid evolution of XML from a mere data exchange format to a universal syntax for encoding domain-specific information raises the need for new query languages specifically conceived to address the characteristics of XML. Such languages should be able not only to extract information from XML documents, but also to apply powerful transformation and restructuring operators, based on a well-defined semantics. Moreover, XML queries should be natural to write and understand, as nontechnical person ...

Keywords: Document restructuring, graphical query languages, semantics

13 SilkRoute: A framework for publishing relational data in XML 

Mary Fernández, Yana Kadiyska, Dan Suciu, Atsuyuki Morishima, Wang-Chiew Tan

December 2002 **ACM Transactions on Database Systems (TODS)**, Volume 27 Issue 4

Full text available:  pdf(687.91 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

XML is the "lingua franca" for data exchange between interenterprise applications. In this work, we describe SilkRoute, a framework for publishing relational data in XML. In SilkRoute, relational data is published in three steps: the relational tables are presented to the database administrator in a canonical XML view; the database administrator defines in the XQuery query language a public, virtual XML view over the canonical XML view; and an application formulates an XQuery query over the publ ...

Keywords: XML, XML storage systems, XQuery

14 XML processing: Ctree: a compact tree for indexing XML data 

Qinghua Zou, Shaorong Liu, Wesley W. Chu

November 2004 **Proceedings of the 6th annual ACM international workshop on Web information and data management**

Full text available:  pdf(272.47 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we propose a novel compact tree (Ctree) for XML indexing, which provides not only concise path summaries at the group level but also detailed child-parent links at the element level. Group level mapping allows efficient pruning of a large search space while element level mapping provides fast access to the parent of an element. Due to the tree nature of XML data and queries, such fast child-to-parent access is essential for efficient XML query processing. Using group-based elem ...

Keywords: Ctree, XML index, XQuery evaluation, path summary, value index

15 Data integration and sharing I: Capturing both types and constraints in data integration 

Michael Benedikt, Chee-Yong Chan, Wenfei Fan, Juliana Freire, Rajeev Rastogi

June 2003 **Proceedings of the 2003 ACM SIGMOD international conference on Management of data**

Full text available:  pdf(690.62 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose a framework for integrating data from multiple relational sources into an XML document that both conforms to a given DTD and satisfies predefined XML constraints. The framework is based on a specification language, AIG, that extends a DTD by (1) associating

element types with semantic attributes (inherited and synthesized, inspired by the corresponding notions from Attribute Grammars), (2) computing these attributes via parameterized SQL queries over multiple data sources, and (3) inc ...

16 An extensible compressor for XML data

Hartmut Liefke, Dan Suciu

March 2000 **ACM SIGMOD Record**, Volume 29 Issue 1

Full text available:  [pdf\(574.51 KB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)



17 Regular expression types for XML

Haruo Hosoya, Jérôme Vouillon, Benjamin C. Pierce

January 2005 **ACM Transactions on Programming Languages and Systems (TOPLAS)**,

Volume 27 Issue 1

Full text available:  [pdf\(349.70 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We propose *regular expression types* as a foundation for statically typed XML processing languages. Regular expression types, like most schema languages for XML, introduce regular expression notations such as repetition (*), alternation (|), etc., to describe XML documents. The novelty of our type system is a semantic presentation of subtyping, as inclusion between the sets of documents denoted by two types. We give several examples illustrating the usefulness of this form of su ...


Keywords: Type systems, XML, subtyping



18 Semistructured Data: XOO7: applying OO7 benchmark to XML query processing tool

Ying Guang Li, Stéphane Bressan, Gillian Dobbie, Zoé Lacroix, Mong Li Lee, Ullas Nambiar, Bimlesh Wadhwa

October 2001 **Proceedings of the tenth international conference on Information and knowledge management**

Full text available:  [pdf\(1.41 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

If XML is to play the critical role of the lingua franca for Internet data interchange that many predict, it is necessary to start designing and adopting benchmarks allowing the comparative performance analysis of the tools being developed and proposed. The effectiveness of existing XML query languages has been studied by many, with a focus on the comparison of linguistic features, implicitly reflecting the fact that most XML tools exist only on paper. In this paper, with a focus on efficiency a ...


Keywords: XML aware database, XML benchmarks, XML management systems, XOO7, native-XML database



19 Semistructured Data: Induction of integrated view for XML data with heterogeneous DTDs

Euna Jeong, Chun-Nan Hsu

October 2001 **Proceedings of the tenth international conference on Information and knowledge management**

Full text available:  [pdf\(2.90 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper proposes a novel approach to integrating heterogeneous XML DTDs. With this approach, an information agent can be easily extended to integrate heterogeneous XML-based contents and perform federated search. Based on a tree grammar inference




technique, this approach derives an integrated view of XML DTDs in an information integration framework. The derivation takes advantages of naming and structural similarities among DTDs in similar domains. The complete approach consists of three main ...

Keywords: XML DTD, distributed databases, federated search, intelligent agent, mark-up schemes, semistructured data

20 XMill: an efficient compressor for XML data

Hartmut Liefke, Dan Suciu

May 2000 **ACM SIGMOD Record , Proceedings of the 2000 ACM SIGMOD international conference on Management of data**, Volume 29 Issue 2

Full text available:  pdf(404.39 KB); Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe a tool for compressing XML data, with applications in data exchange and archiving, which usually achieves about twice the compression ratio of gzip at roughly the same speed. The compressor, called XMill, incorporates and combines existing compressors in order to apply them to heterogeneous XML data: it uses zlib, the library function for gzip, a collection of datatype specific compressors for simple data types, and, possibly, user defined compressors for application specific data ...

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1 [The emerging law of international electronic commerce: recent work by UNCITRAL](#)

Henry Deeb Gabriel

 September 2003 **Proceedings of the 5th international conference on Electronic commerce**

 Full text available: [pdf\(148.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes the minimal aspects of any law intended to govern electronic commerce, and discusses the recent attempts by the United Nations Commission on International Trade Law to create a legal framework for electronic commerce. Electronic commerce laws recognize the validity of electronic records, signatures and contracts without changing the underlying substantive law of contracts. The UNCITRAL approach to electronic commerce legislation is based on the "functional-equivalent" apprao ...

Keywords: contract, functional equivalence, media neutrality

2 [Agent-mediated electronic commerce: issues, challenges and some viewpoints](#)

Hyacinth S. Nwana, Jeff Rosenschein, Tuomas Sandholm, Carles Sierra, Pattie Maes, Rob Guttman

 May 1998 **Proceedings of the second international conference on Autonomous agents**

 Full text available: [pdf\(1.13 MB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)

3 [Atomicity in electronic commerce](#)

J. D. Tygar

 May 1998 **netWorker**, Volume 2 Issue 2













 Full text available: [pdf\(225.48 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

4 [Atomicity in electronic commerce](#)

J. D. Tygar

 May 1996 **Proceedings of the fifteenth annual ACM symposium on Principles of distributed computing**

 Full text available: [pdf\(1.74 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

- 5 [Electronic commerce: a strategic application?](#) 
Albert L. Lederer, Dinesh A. Mirchandani, Kenneth Sims
April 1996 **Proceedings of the 1996 ACM SIGCPR/SIGMIS conference on Computer personnel research**
Full text available:  [pdf\(936.13 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)
- 6 [Economic returns to firms from business-to-business electronic commerce initiatives: an empirical examination](#) 
Mani Subramani, Eric Walden
December 2000 **Proceedings of the twenty first international conference on Information systems**
Full text available:  [pdf\(152.76 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)
- Keywords:** contract, economic theory, empirical research, strategic value
- 7 [The impact of electronic commerce](#) 
Kaiyin Huang
April 1997 **Proceedings of the 1997 ACM SIGCPR conference on Computer personnel research**
Full text available:  [pdf\(702.19 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)
- 8 [Strategic directions in electronic commerce and digital libraries: towards a digital agora](#) 
Nabil Adam, Yelena Yesha
December 1996 **ACM Computing Surveys (CSUR)**, Volume 28 Issue 4
Full text available:  [pdf\(244.34 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)
- 9 [Trust and traceability in electronic commerce](#) 
Dennis D. Steinauer, Shukri A. Wakid, Stanley Rasberry
September 1997 **StandardView**, Volume 5 Issue 3
Full text available:  [pdf\(46.16 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)
- 10 [On automated message processing in electronic commerce and work support systems: speech act theory and expressive felicity](#) 
Steven O. Kimbrough, Scott A. Moore
October 1997 **ACM Transactions on Information Systems (TOIS)**, Volume 15 Issue 4
Full text available:  [pdf\(502.20 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Electronic messaging, whether in an office environment or for electronic commerce, is normally carried out in natural language, even when supported by information systems. For a variety of reasons, it would be useful if electronic messaging systems could have semantic access to, that is, access to the meanings and contents of, the messages they process. Given that natural language understanding is not a practicable alternative, there remain three approaches to delivering systems with semant ...

Keywords: electronic commerce, formal language for business communication, speech act theory

11 Experience: Development of an electronic commerce portal system using a specific software development process

Volker Gruhn, Martin Mocker, Lothar Schöpe

February 2002 **Proceedings of the Fortieth International Conference on Tools Pacific: Objects for internet, mobile and embedded applications - Volume 10**

Full text available:  pdf(979.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


The development of electronic commerce (EC) systems is subject to different conditions than that of conventional software systems. Consequently, software development processes used for conventional systems to date need to be adapted to these new conditions. This includes the introduction of new activities to the development process and the removal of others. In addition, the roles involved in the development process, their tasks, qualifications and the software tools used by them, are different ...

Keywords: application integration, component based development, distributed architecture design, electronic commerce, software development process

12 Heterogeneous product description in electronic commerce

Wee Keong Ng, Guanghao Yan, Ee-Peng Lim

June 2000 **ACM SIGecom Exchanges**, Volume 1 Issue 1

Full text available:  pdf(169.27 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The heterogeneity of product descriptions is an impediment to successful interactions among buyers and vendors in electronic commerce. There is no uniform description even for the same product type among different vendors. In electronic commerce activities involving interactions among different vendors (business-to-business) or between a buyer and vendors (consumer-to-business), a common ontology for products is critical. There are two approaches to resolve the information heterogeneity problem ...

Keywords: electronic commerce, information exchange, schema integration

13 Data management issues in electronic commerce: Business data management for business-to-business electronic commerce

Christoph Quix, Mareike Schoop, Manfred Jeusfeld

March 2002 **ACM SIGMOD Record**, Volume 31 Issue 1

Full text available:  pdf(582.22 KB) Additional Information: [full citation](#), [abstract](#), [references](#)


Business-to-business electronic commerce (B2B EC) opens up new possibilities of trade. For example, new business partners from around the globe can be found, their offers can be compared, even complex negotiations can be conducted electronically, and a contract can be drawn up and fulfilled via an electronic marketplace. However, a sophisticated data management is required to provide such facilities. In this paper, the results of a multi-national project on creating a business-to-business elect ...

14 Brokering strategies in electronic commerce markets

Arie Segev, Carrie Beam

November 1999 **Proceedings of the 1st ACM conference on Electronic commerce**

Full text available: Additional Information:


 pdf(122.36 KB)[full citation, references, citings, index terms](#)

Keywords: borkers, electronic commerce, intermediation, internet, markets

15 [Computer-supported negotiations: an experimental study of bargaining in electronic commerce](#) 

Khim-Yong Goh, Hock-Hai Teo, Haixin Wu, Kwok-Kee Wei

December 2000 **Proceedings of the twenty first international conference on Information systems**

Full text available:  pdf(334.55 KB) Additional Information: [full citation, references, index terms](#)

16 [Selling in the era of the "Net": integration of electronic commerce in small firms](#) 

William J. Kettinger, Gary Hackbarth

December 1997 **Proceedings of the eighteenth international conference on Information systems**

Full text available:  pdf(70.91 KB) Additional Information: [full citation, references, citings](#)

17 [Trading partner trust in electronic commerce participation](#) 

Pauline Ratnasingham, Kuldeep Kumar

December 2000 **Proceedings of the twenty first international conference on Information systems**

Full text available:  pdf(142.64 KB) Additional Information: [full citation, references, citings, index terms](#)

18 [Issues in the law of electronic commerce](#) 

Richard L. Field

November 1997 **netWorker**, Volume 1 Issue 3

Full text available:  pdf(652.19 KB) Additional Information: [full citation, index terms](#)

19 [Toward a unified view of electronic commerce](#) 

Frederick J. Riggins, Hyeun-Suk (Sue) Rhee

October 1998 **Communications of the ACM**, Volume 41 Issue 10

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Wayne Smith

October 1997 **Crossroads**, Volume 4 Issue 1

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